



EXHIBIT 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

215 Fremont Street
San Francisco, Ca. 94105

29 JUL 1986

MEMORANDUM

DATE: 16 July 1986

SUBJECT: Supporting documentation for use of "action levels" in response action decision-making processes.

RE: EPA's "action level" of 1 percent asbestos in bulk samples from unpaved roadways surfaced with crushed serpentine stone containing asbestos.

FROM: *Daniel Shane*
Daniel Shane, On-Scene Coordinator, Emergency Response Section

TO: File

THRU: Terry Brubaker, Chief, Emergency Response Section

INTRODUCTION

CERCLA and the National Contingency Plan authorizes EPA to initiate an immediate response action in a situation where a hazardous substance poses a threat to public health, welfare, or the environment.

This type of rapid response to a hazardous substance release or threat of release is referred to as a removal action and is carried out by EPA under the emergency response program. Removal activities generally include controlling and stabilizing the release, removing hazardous substances from the site, and providing treatment or disposal of removed material. Another type of response is a remedial action. This longer-term cleanup operation is conducted at a waste site where a solution to complex environmental problems requires careful planning and analysis as in the case of a Superfund site that has been included on the National Priority List.

Unless EPA determines that a responsible party will properly perform corrective actions to abate the ongoing release, EPA is authorized to spend public funds to perform such actions. Responsible parties may be ordered to implement response actions and may also be liable for all costs incurred by the government in responding to any release or threatened release at the site.

EPA recently completed major removal actions at sites where roadways were found to contain high levels of asbestos. In all cases, bulk samples were well above 1 percent asbestos which EPA considers to be an unsafe level. These actions received substantial media attention which translated to increased public awareness about the asbestos issue and, in the near future, EPA will be receiving numerous reports of similar asbestos problems in other communities.

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In most circumstances, EPA believes that the local health agencies and community services districts that maintain these roads are in the best position to assess local conditions and implement the most appropriate control measures. In many cases, these local entities are the responsible parties and the control measures for stabilizing asbestos are within their financial capabilities. The role of EPA should be to provide oversight and technical assistance.

EPA OSCs are faced with a difficult task of convincing local health officials that there is an actual public health threat and to use their existing enforcement authorities (i.e., nuisance, fugitive dust rules, etc.) to exert pressure on the districts to initiate immediate control measures. OSC's have received repeated requests from local officials for written documentation supporting EPA's "action level" policy for asbestos which they can present to community leaders at public meetings. Therefore, this report was prepared for the purpose of responding to public inquiries.

PRELIMINARY ASSESSMENT PROCESS

The NCP requires EPA to conduct a site assessment prior to initiating a removal action. In several instances, EPA has confirmed the presence of high levels of exposed asbestos on roadways in residential communities. Asbestos is a designated "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. 9601(14), and a "pollutant or contaminant" under Section 104(a)(2) of CERCLA, 42 U.S.C. 9601(a)(2). Airborne releases of asbestos fibers represent a potential threat to public health.

The extent of asbestos contamination was determined during the sampling and analysis phase of the site assessment. Representative samples of surface soil and stone were taken from the roadways and analyzed for asbestos content using polarized light microscopy or PLM. Analytical results are expressed as percent asbestos, by area. For example, a typical lab report would state the analytical results as 10-20% asbestos (chrysotile) and 80-90% other components (clays, quartz, iron oxides, misc. particles).

The site assessment may include an evaluation of the magnitude of the hazard. CERCLA authorizes the Department of Health and Human Services, through the Agency for Toxic Substances and Disease Registry (ATSDR), to provide direct support to EPA in evaluating the public health risks from a hazardous substance release. ATSDR develops and maintains information on health effects of toxic substances, conducts health surveys and studies, and issues public health advisories. The OSC can use a public health advisory in selecting appropriate removal activities, however, it is not a prerequisite to a removal action.

Although "action levels" and "advisories" are used synonymously, there are significant differences in their application to emergency response. The term "action level" actually refers to the California Department of Health Services (DOHS) "mandatory response levels" for contamination of a drinking water supply. DOHS action levels are health-based criteria derived much the same way as EPA health advisories, however, public health advisories can be issued in a variety of environmental situations. As previously stated, an advisory provides guidance and may represent one of several factors that is evaluated prior to initiating a removal action.

DETERMINATION OF "ACTION LEVEL" FOR ASBESTOS

A primary consideration in determining the appropriate extent of action to be taken to abate the threat or potential threat of airborne releases of asbestos fibers is the actual or potential exposure to asbestos by nearby populations.

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An initial determination that a release may pose an unacceptable risk of exposure to a hazardous substance can be made based on a finding that the levels of contamination measured on-site exceed an applicable standard for that particular hazardous substance.

Presently, there is no Federal standard that applies to asbestos in crushed serpentine stone. In the absence of an applicable standard for a hazardous substance, CERCLA directs EPA to use relevant and appropriate Federal requirements to formulate on-site removal actions.

EPA has published regulations to reduce asbestos exposure from various sources. The National Emission Standards for Hazardous Air Pollutants (NESHAP), as authorized by the Clean Air Act, regulates asbestos-containing waste materials. It establishes requirements for handling asbestos during building demolition and renovation, uses of insulating asbestos in new buildings, and asbestos emissions from waste disposal operations. NESHAP also regulates asbestos on roads and prohibits the surfacing of roadways with asbestos tailings or asbestos-containing waste materials.

NESHAP defines the term "asbestos-containing waste materials" as any waste that contains commercial asbestos and is generated by a source subject to the regulations. This term includes asbestos mine or mill tailings, asbestos from control devices, bags and containers that previously held commercial asbestos, and friable asbestos waste materials. Commercial asbestos means any asbestos that is extracted from asbestos ore.

An asbestos mine is a quarry operated for the purpose of producing asbestos which is a raw material used in the manufacturing of many products sold in commerce. A stone quarry is operated for the purpose of producing crushed serpentine stone for use as road base aggregate material. Stone quarries often contain asbestos deposits. This type of quarry operation is not an asbestos mine and the crushed stones are not asbestos tailings nor commercial asbestos as defined by NESHAP. Consequently, stone quarry operations and the distribution of asbestos-containing serpentine stone in commerce are not currently regulated by NESHAP.

NESHAP defines friable asbestos as any material containing more than 1 percent by weight that hand-pressure can crumble, pulverize, or reduce to powder when dry. The 1 percent requirement became the selected control level since this is the detection limit for the prescribed analytical method. NESHAP uses PLM for the identification and measurement of asbestos in bulk samples and considers PLM to be the state-of-the-art asbestos measurement technology.

An unfortunate inconsistency has emerged regarding the units of measurement for friable asbestos in the NESHAP definition and the units of measurement employed in the PLM asbestos analysis. The definition specifies asbestos content as 1 percent by weight and PLM determines the asbestos percent by area (not weight) in a subsample.

EPA has recently proposed amendments to NESHAP including a revision to the definition of friable asbestos which would eliminate this inconsistency. The revised definition will specify asbestos content as 1 percent by area in place of the current 1 percent by weight. The background document states that, although the relationship between percent by area and percent by weight has not been determined, the impact of this revision is not considered to be a serious problem.

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EPA intends to regulate the asbestos content of materials to the lowest level that can be reliably measured by any method and the "area" method meets that requirement.

In addition, "friable asbestos material" has been expanded to include materials that can be crumbled, pulverized, or reduced to powder by mechanical forces expected to act on the material.

A second set of EPA regulations is in the "Asbestos-In-School Rule" administered under the Toxic Substances Control Act (TSCA). TSCA requires all primary and secondary schools to inspect, sample, and analyze friable materials for asbestos, document findings, and notify all employees and parents of the location of friable asbestos material. TSCA has adopted the NESHAP 1 percent requirement for defining friable asbestos material.

EPA has had extensive field experience at sites where quarried serpentine stone containing asbestos has been used as a surfacing material on unpaved roadways. At these sites EPA found that road base stone subjected to the constant crushing and grinding action of vehicular traffic will, over a period of years, transform asbestos mineral from a solid, crystalline substance into a friable asbestos material.

Based on actual field observations and after consultation with the ATSDR, EPA determined that the application of the NESHAP requirement for friable asbestos to be relevant and appropriate in situations where unpaved roads are surfaced with serpentine stone containing asbestos.

Consequently, EPA has adopted the NESHAP requirement and considers concentrations of asbestos on roadways that exceed 1 percent when determined by polarized light microscopy to be an unsafe level and may pose an unacceptable risk to human health.

EPA has applied this "action level" consistently in studies and investigations related to removal and remedial actions at asbestos sites within the region. Major removal actions were recently completed in residential areas located in Copperopolis and Alviso. These California sites had asbestos levels in road samples ranging from 5 to 50 percent chrysotile asbestos.

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